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CORRESPONDENCE

Subsequent Epstein–Barr virus-associated gastric carcinoma shortly after chemotherapy for colonic cancer

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Occurrences of Epstein–Barr virus (EBV)-associated gastric carcinoma (EBVaGC) are usually uncommon, and it was first reported in 1990.[1] Rapid development of a subsequent EBVaGC after a cancer episode is extremely rare and only one case was previously reported.[2] In this report, we present the case of a male patient who developed EBVaGC after an adjuvant chemotherapy for colonic cancer in 2 months.

A 69-year-old male patient presented with tarry stool passage for 1 week. His past history was remarkable for transverse colon adenocarcinoma status after right hemicolectomy. The tumor stage was T3N1M0 and he underwent an adjuvant chemotherapy treatment 2 months before.

The carcinoembryonic antigen level was 8.0 ng/mL. Results of a panendoscopic study revealed an ulcerative mass at the middle body of the stomach (Fig. 1A). A computed tomography was performed, which showed a 4-cm ulcerative tumor at the anterior wall of gastric body (Fig. 1B). There was no evidence of local recurrence of colonic cancer. Results of a gastric biopsy revealed malignancy and the patient received subtotal gastrectomy.

Results of histopathological findings in the stomach revealed tumor cells with vesicular nuclei and prominent nucleoli arranged in a syncytial pattern infiltrating the abundant lymphoid background (Fig. 1C; hematoxylin and eosin stain, 400×). Immunohistochemically, the tumor cells were positive for pan-cytokeratin. Results of Epstein–Barr encoding region *in situ* hybridization were positive (Fig. 1D) and EBVaGC was diagnosed. The patient remains stable 2 years postoperatively.

EBVaGC is uncommon and the clinical features reveal male predominance, relatively young age compared with EBV-negative gastric carcinoma, and frequently occurring at the proximal stomach region.[3,4] EBVaGC is associated with higher incidence of multiple carcinomas at different sites of the stomach and gastric remnant carcinoma status after a partial gastrectomy for benign gastric diseases.[4,5] There are two histopathological patterns: an ordinary type of adenocarcinoma and a lymphoepithelioma-like carcinoma. More than 80% of lymphoepithelioma-like carcinoma is associated with EBV.[4] Some studies have reported differences in the survival rate between patients with EBVaGC and EBV-negative gastric carcinoma. van Beek et al reported that EBVaGC was associated with a lower rate of lymph node involvement and better cancer-specific survival[3]; however, other studies failed to reveal a significant relationship.

EBV is associated with the transformation of various types of tumors, including hematologic neoplasms (NK/T cell lymphoma, Burkitt lymphoma, Hodgkin lymphoma, post-transplant lymphoproliferative disorder), mesenchymal tumor (leiomyosarcoma), and epithelial tumors (nasopharyngeal carcinoma, gastric carcinoma, lymphoepithelioma-like carcinoma).

Conflicts of interest: The authors have no conflicts of interest relevant to this article.

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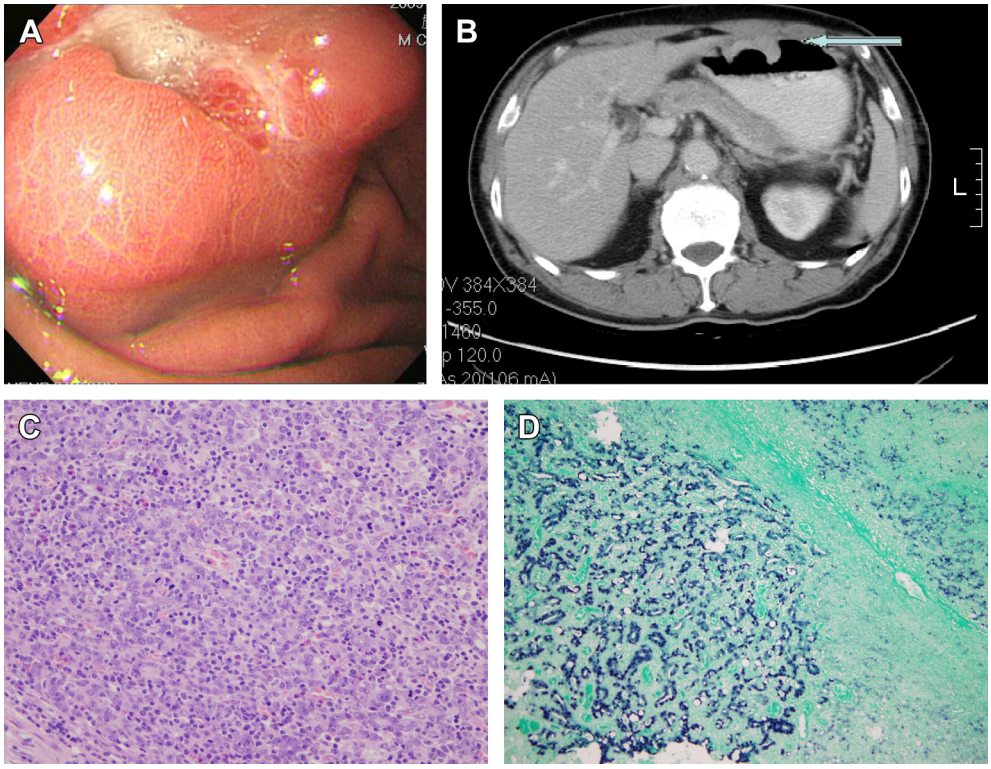

Figure 1 (A) An ulcerative mass at the middle body of the stomach. (B) Results of a computed tomography showed a 4-cm ulcerative tumor at the anterior wall of gastric body (arrow). (C) Histological features of tumor cells arranged in a syncytial pattern infiltrating the lymphoid background (hematoxylin and eosin stain, 400×). (D) The tumor cells were positive for Epstein—Barr encoding region *in situ* hybridization (100×).

Our patient developed subsequent EBVaGC after an adjuvant chemotherapy for colonic cancer in 2 months. The interval was quite short. In the literature, only a case report described a patient, who received hematopoietic stem cell transplantation for the treatment of multiple myeloma and developed EBVaGC after 3-month immunosuppression.[2] They illustrated the possible sequences of mucosal damage by graft versus host disease, immunosuppression, and EBV re-activation leading to the initiation of carcinogenesis. To understand the actual mechanism, further investigations of more similar cases are needed in the future. The clinicians and pathologists should be aware of the possibility of EBV-associated entity when the patients are in the immunocompromised status.

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